SUSTAINABLE WATER MANAGEMENT: A DEMAND SIDE APPROACH

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EXECUTIVE SUMMARY

With recent reforms in the water industry in Australia, water service providers have a choice between becoming low cost commodity suppliers or securing a profitable future with an emphasis on customer service, offering a range of products. The demand side approach supports the latter course, by asking the question "how can a water service provider best satisfy the needs of its customers at least cost and with the maximum efficiency?".

The demand side approach means investing in improving the efficiency of water use on the demand side of the industry, for example by proving financial incentives to customers to improve the efficiency with which they use water.

The demand side approach has the advantage of satisfying financial objectives at the same time as ecological and customer service objectives. Improving the water use efficiency of customers can permanently and reliably reduce the demand for water, while maintaining the level of customer service. This approach is preferable to a reliance solely on pricing, educational programs and restrictions which impact on water using behaviour and discretionary usage of water but make limited inroads into customer choice of water using equipment, due to a number of market failures and barriers.

Such an approach requires a detailed knowledge of the disaggregated end use of water and the current and potential efficiency of water use. Water supply agencies have tended to have limited knowledge of these areas, which has limited their ability to recognise and act on the potential for improving efficiency and capturing substantial savings beyond the customer's water meter.

The term least-cost planning is used to describe the methodology employed by some water and energy utilities in which demand- and supply-side options are directly compared in order to determine the appropriate mix and achieve the least cost outcome. For example, the marginal cost of water from a new groundwater source for a community might cost $AUS1.50 per kilolitre, whereas the installation of water efficient shower heads in customer's premises will reduce demand and therefore provide 'new capacity' at a cost of less than AUS20¢ per kilolitre.

In Kalgoorlie-Boulder in Western Australia in 1995, the Water Corporation of W.A. implemented a $AUS3.5m water efficiency program which included the replacement of toilets, shower heads and other fixtures and an innovative program of paying customers to replace lawn with low water use landscaping. Preliminary results indicate that the demand reduction is consistent with estimates of 700 Ml/a, which will yield significant financial benefits to the Water Corporation in reduced operating losses and the deferral of pipeline and pump station augmentation.

In northern New South Wales, a bulk water supply authority Rous County Council has implemented a major water efficiency program including pricing and billing reform and leakage detection, free water saving action plans for non-residential customers, reduced price residential water efficiency assessments, appliance retrofitting and a $AUS150 rebate off the cost of front loading washing machines at point of sale. For Rous County Council, a reduction in demand of one Ml/a generates a financial benefit of more than $3,500 in deferred investment in capital works such as treatment plants, pump stations, pipelines and a major off-stream storage. This means that measures which permanently and reliably reduce the demand for water represent the best value for money out of a range of supply and demand side options.

A new research program is designed to determine the financial benefits that may be associated with reduced discharge of wastewater to treatment plants. Preliminary investigations suggest that a comprehensive water efficiency program aimed at reducing the discharge of wastewater to the sewer